Abstract of the Disclosure

A background memory manager (BMM) for managing a memory in a data processing system has circuitry for transferring data to and from an outside device and to and from a memory, a memory state map associated with the memory, and a communication link to a processor. The BMM manages the memory, determining if each data structure fits into the memory, deciding exactly where to place the data structure in memory, performing all data transfers between the outside device and the memory, and maintaining the memory state map according to memory transactions made, and informing the processor of new data and its location. In preferred embodiments the BMM, in the process of storing data structures into the memory, provides an identifier for each structure to the processor. The system is particularly applicable to Internet packet processing in packet routers.